

# NOKIA 2650/2651

RH-53 / RH-54



## Transceiver characteristics:

- 2650 – Dual Band EGSM 900MHz/1800MHz
- 2651 – Dual Band GSM 850MHz/1900MHz
- Fold design in a compact package
- 128 x 128 pixel high-resolution, 4096-color display
- Download Java™ games, applications, wallpapers, and ringing tones
- Advanced MMS messaging and more memory for messages
- Customized date and time screensaver
- Personal shortcuts via right soft key
- Automatic volume control
- Automatic key guard
- Polyphonic (SP MIDI) ringing tones with up to 4 chords - can also be used as alerts
- Advanced countdown timer
- LED alerts for incoming calls and text messages
- Browser functionality via GPRS

Transceiver with BL-4C 760mAh Li-Ion battery pack

Talk time	Standby	Note
Up to 3h	Up to 300h	Depends on network parameters

## Environmental characteristics:

- Lead-free soldered

# SERVICE MANUAL

## Service Level 1&2

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## CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	22.07.2004	Initial draft / for Approval
Approved	1.0	05.08.2004	General repair information modified
Approved	2.0	19.08.2004	Lead-free information added
Approved	3.0	10.02.2005	2651 RH-54 updated

## 1. INTRODUCTION

The purpose of this document is to help Nokia service levels 1 and 2 workshop technicians to carry out service to Nokia products. This Service Manual is to be used **only** by authorized Nokia service suppliers, and the content of it is **confidential**. Please note that Nokia provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist. If you find any errors or if you have further suggestions, please notify Nokia using the address below:

<mailto:cc-ts-rc.documentation@nokia.com>

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

### Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

#### Warnings:

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

#### Cautions:

1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti-static workstation and that an anti-static wrist strap is worn.
3. Use only approved components as specified in the parts list.
4. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment.  
Ensure all cables and wires are repositioned correctly.



Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Supplier has to take care of all precautions, which are mentioned in the service level related "Service Partner Requirements", available on Nokia Partner Web Site/Nokia Online. Also see ESD Protection Requirements in this Service Manual.

## 2. GENERAL REPAIR INFORMATION

In this section the technician will get some general hints how to carry out repairs:

- To familiarize oneself with Nokia product read the tutorials or user guide on [www.nokia.com](http://www.nokia.com) -->Support--> Phones, by selecting the Phone Model.
- Before starting the repair you must take care of ESD precautions like being in your ESD Protected Area and connecting your wristband.
- Use gloves to avoid corrosion and fingerprints.
- Protect windows and displays with a film to avoid dust and scratches.
- When cleaning the LCD Module any lint-free cloth can be used (e.g. Micro-Fibre cloth).
- When cleaning the pads you have to use a soft cloth/ESD brush and Isopropanol. It is not allowed to use a glass fiber pencil because it scratches the surface and will lead later on to corrosion.
- Mechanical parts (except shielding lids and bent parts), which didn't repair the failure, can be reused, if they are not soldered.
- When removing the shielding lids make sure to replace them with new ones, otherwise the high-frequency leakage can have an influence on the device.
- Always use original Nokia spare parts.
- Check the soldering joints of the parts, which are concerned regarding the indicated error (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
- Remove redundant soldering flux after repair.
- Meet the torque requirements when assembling the unit (see also the document "torques for transceiver assembly" on Nokia Partner Web Site/Nokia Online).
- Always use your own equipment for testing where you are sure that it works. E.g. if the customer complains about charger function, please test the phone with your own charger to be sure if phone or charger causes the malfunction.
- A SIM card is needed for all GoNoGo tests.
- When doing the fault log entries, always note the Item code, which caused the malfunction. Also, fill in the appropriate part code from the assembly, if needed.
- Please be aware that some malfunctions could be software related and solved by an update.
  
- There are several documents available on PWS/NOL, which have to be followed:
- First, take care for the latest content pages of Service Bulletins, which are always available for each folder on Nokia Partner Web Site/Nokia Online. This is also important to recognize, if existing documents have become invalid.
- The service level indicator at the bottom of each document tells the appropriate destination.

**Downloads > Support Library >**

1. Instructions
2. General Service Bulletins
3. Product related documents
4. Spare Part Service Bulletins
5. Service Tools Service Bulletins
6. Common Softwares Service Bulletins
- etc,...

**Use General SB-217 as a reference or overview.**

Please also check Nokia Partner Web Site (PWS)/Nokia Online (NOL) for latest news and files on a regular basis.

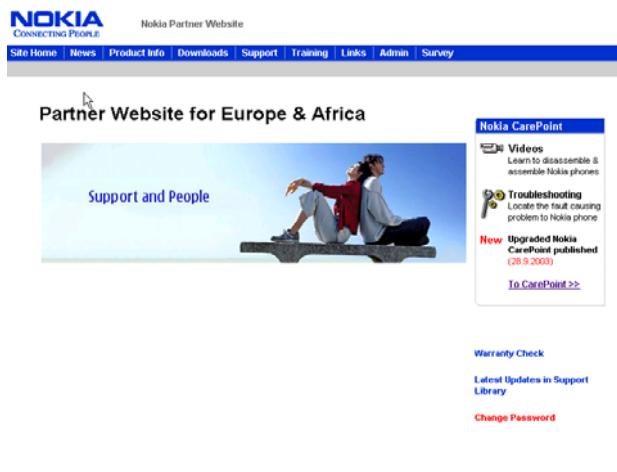
### 3. PATHFINDER FOR WORKSHOP STAFF

In addition to the information in this Service Manual, there are several instructions and information, which have to be followed.

Main documentation database is Nokia [Partner Website](#) / [Nokia Online](#) with the purpose of serving different multimedia content, like video clips or interactive tutorials.

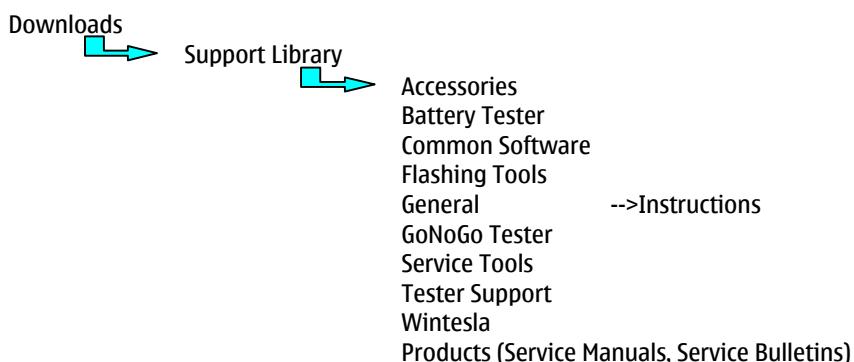
#### Nokia Partner Web Site

Nokia Partner Web Site for EMEA region is the most important document database for all service suppliers (level 1-4). All service relevant information like e.g. Service Manuals, Service Bulletins or general instructions are available. Content is restricted according your access level. To be kept up-to-date also concerning newest software updates, a daily check of "latest updates in support library" is needed.



It is mandatory to watch for newest technical and organizational information on a daily basis to be updated as required (see "**Latest Updates in support Library**"). Every new information has to be processed and implemented as soon as possible.

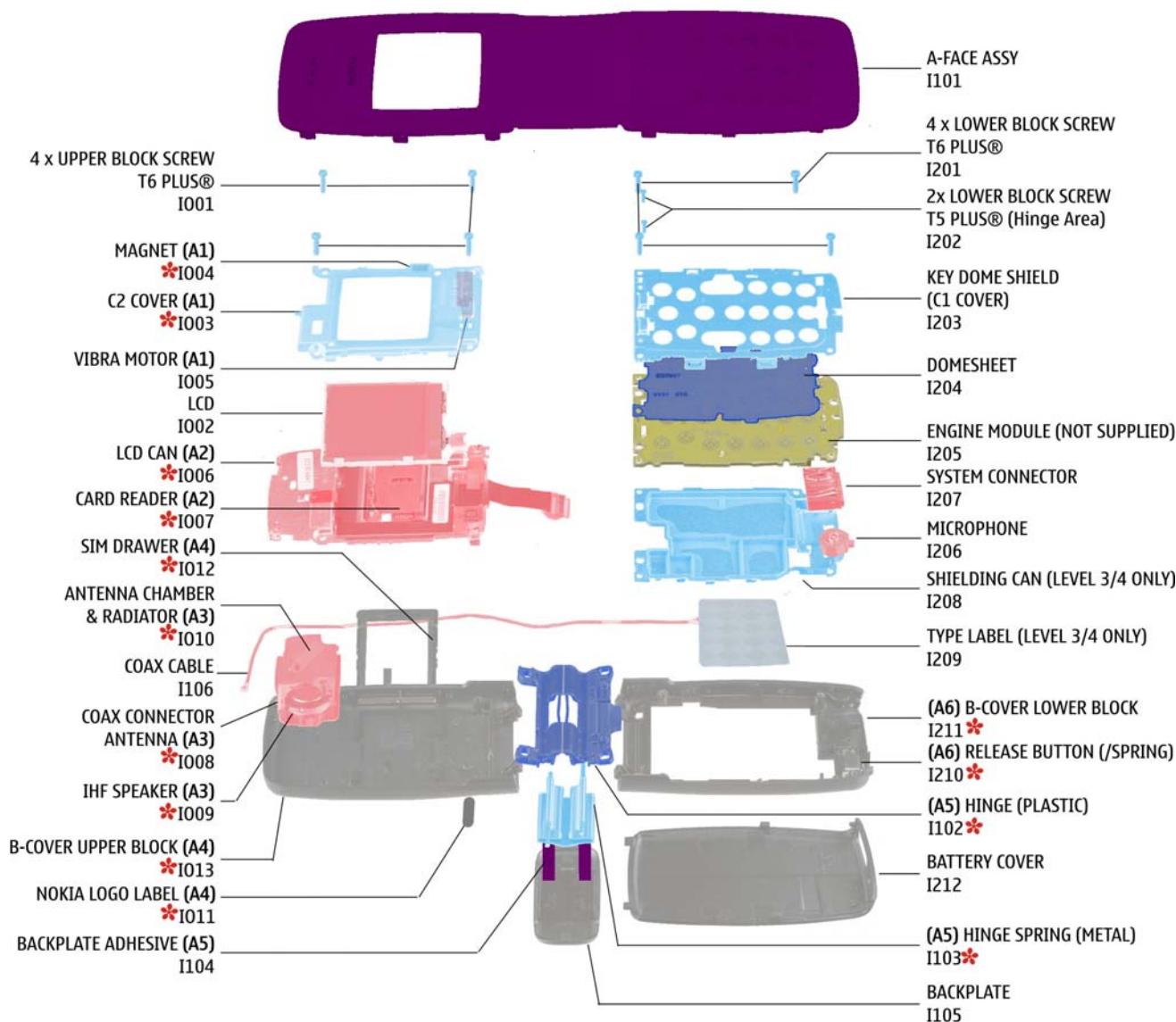
When logged into PWS you can also find needed information in different folder like:



To reduce the server traffic it is recommended to download newest version of huge files like videos, Phoenix packages or Service Manuals only once and distribute it internally for further use.

## 4. EXPLODED VIEW AND COMPONENT DISPOSAL

Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on PWS/NOL.



A1= C2 COVER ASSY  
 A2= LCD CAN ASSY  
 A3= IHF ANTENNA MODULE  
 A4= B-COVER UPPER ASSY  
 A5= HINGE ASSY  
 A6= B-COVER LOWER ASSY

\* = ONLY AVAILABLE AS ASSEMBLY

Electro

Silicone

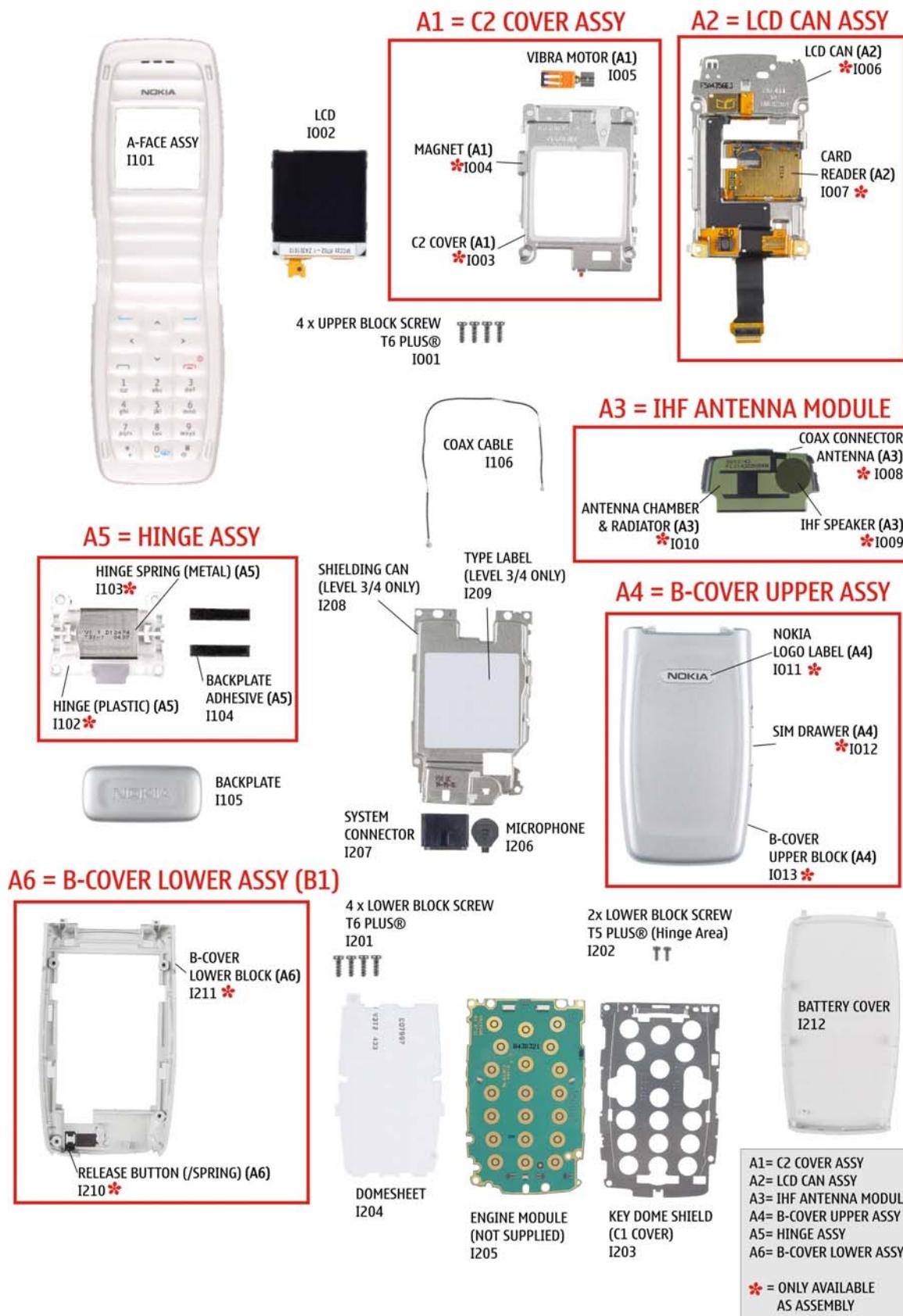
Metal

Plastic

PWB

Cover

## 5. SPARE PARTS OVERVIEW



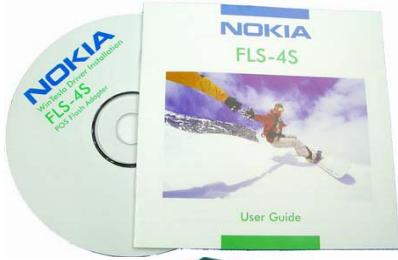
## 6. SPARE PARTS LIST

**Please exchange this page (placeholder) with latest corresponding Service Bulletins (spare parts, SWAP units and service tools) from PWS/NOL!**

**This will ensure, that you are using up-to-date order codes only.**

**Therefore Service Bulletins have to be checked from PWS/NOL on daily basis.**

## 7. SERVICE TOOLS

**FLS-4S incl. ACF-8, Driver and User Guide**

Dongle and flash device incorporated into one package, developed specifically for POS use.

**ACF-8**

Universal Power Supply is used to power FLS-4S.

**Internal Battery BL-4C**

Inserted under the back cover, this Li-Ion 850 mAh battery provides power in a lightweight package.

**Travel Charger ACP-12**

Small and lightweight charger for fast charging of your phone battery.

**Headset HDC-5**

An easy and convenient handsfree solution with remote control.

**XCS-1**

Service Cable is used to connect FLS-4S to SF-33 .

**SF-33**

POS Flash Adapter is used in POS (Point of Sales) environment for software updating. It provides controlled supply voltage and necessary connections between the phone and the Flash Device. It substitutes for the phone's standard battery during the software update.



**Test Pins**  
for Flash Adapter SF-33



**SS-34**  
Flex Opening Tool



**RJ-39**  
Soldering Jig



**Lead-free Solder Wire**  
Mandatory for lead-free products (Level 2 only).



#### 0772040 NMP Standard Toolkit

- Nokia opening tool SRT-6 Nokia No. 0770431
- Tonichi torque driver Nokia No. 6901525
- [Hoya](#) micro fibre cloth MX304
- [Dastex](#) gloves S, M, XL
- [Artlux](#) goggles AH166
- [Wera](#) bit T5 867/4TX 5x50
- Wera 867/4 6IP; 50mm (Torx 6 PLUS®)
- Wera bit T6 867/4TX 6x50
- Wera 867/1 5IP; 25mm (Torx 5 PLUS®)
- Wera bit T6 PLUS® 867/4TX 6IP
- [Facom](#) side cutter 416E
- Facom T5 driver SP.14032
- Facom T6 driver SP.14033
- Facom slot screwdriver AEF. 2x35.E
- [Wetec](#) tweezers 7abb SA-ESD
- Wetec tweezers 22 SA-ESD
- Wetec tweezers 13 SA-SMD ESD
- Wetec tweezers PSF SA-ESD
- Wetec ESD brush E1211
- [Kaiser](#) Fototechnik airbrush 6315
- Wetec dental tool DEM83266/0
- [RS Components](#) Scissors 323-5732

## 8. SW-UPDATE

To use FLS-4S Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on Nokia [Partner Web Site](#) / [Nokia Online](#).

### Flash Concept – (Point of Sales)

**It is very important to follow this insertion and removal procedure, otherwise the contact pins of Flash Adapter will be damaged.**



Close SIM Lid before inserting the Flash Adapter.



1.) Insert the Flash Adapter SF-33 by starting at the Battery Connector side.



2.) First, press the locking of the Flash Adapter and then push it into the bottom side of the phone, do not use too much force.

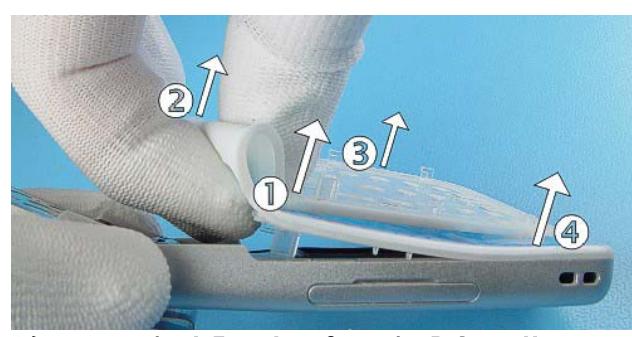
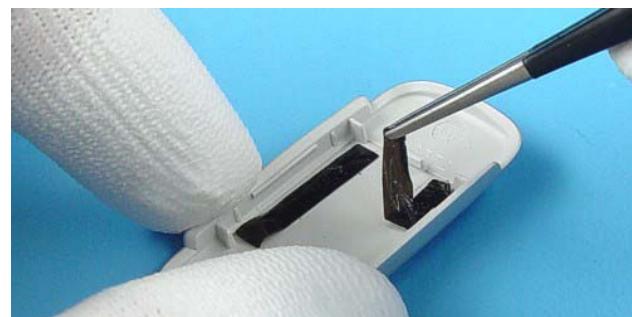
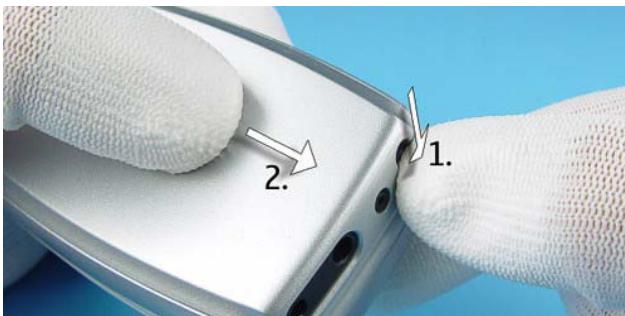


3.) When removing the Flash Adapter, press the locking as shown in the picture.



Now, take away the unit.

## 9. DISASSEMBLY INSTRUCTIONS

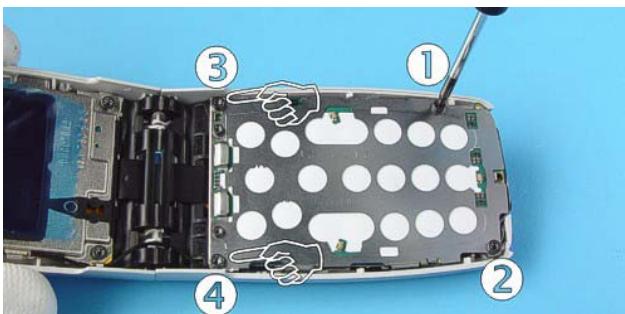




9.) Protect the inner side of the Window with a film.



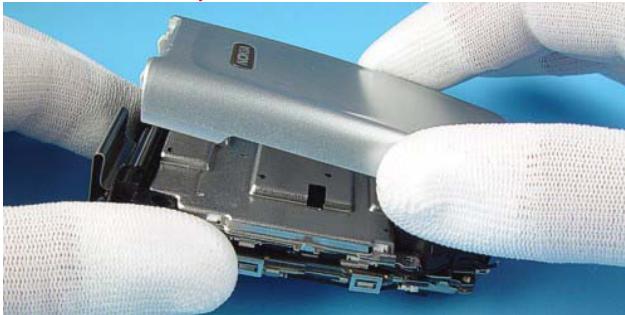
10.) Unscrew the four Torx Plus® size 6 screws of **Upper Block**. For assembly, the reverse order and a Torx Plus® driver with a torque of 27Ncm has to be used.



11.) Unscrew the four Torx Plus® size 6 screws of **Lower Block**. For assembly, the reverse order and a Torx Plus® driver with a torque of 27Ncm has to be used.



12.) Now, the **B-Cover Lower Block...**



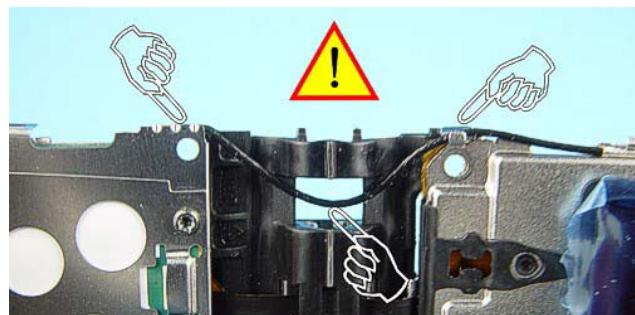
13.) ...and the **B-Cover Upper Block** can be removed.

Consider if the malfunction caused by Upper or Lower Block. Only open the Coax Connector and remove the Coax Cable on the defective Block of the unit.

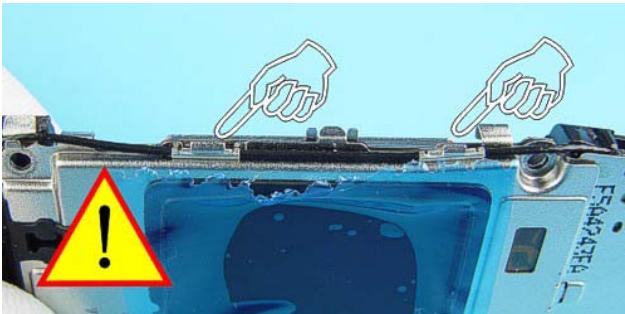
(For e.g. LCD / Vibra / IHF Speaker fault -> start disassemble upper part, Microphone / Keypad / Charger fault -> start disassemble lower part)



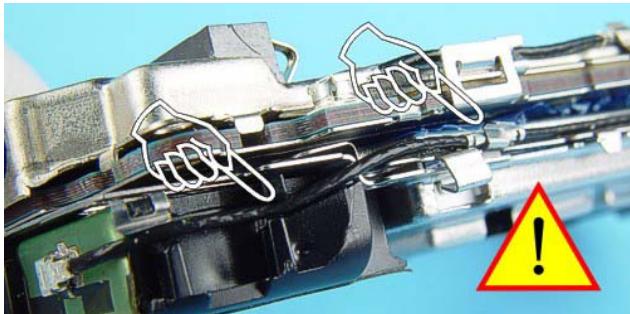
14.) Placement of the **Coax Cable** in the **Lower Block**.



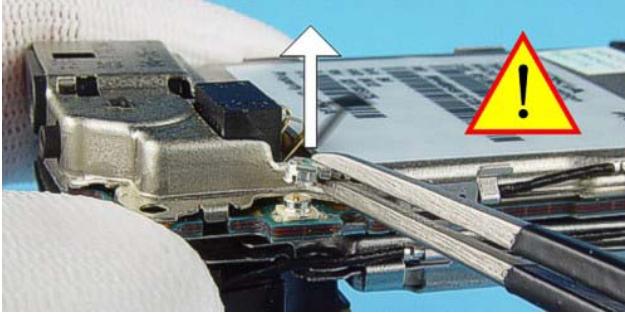
15.) Placement of the **Coax Cable** in the **Hinge**.



#### **16.) Placement of the Coax Cable in the Upper Block.**



## **17.) Placement of the Coax Cable in the IHF Antenna Module.**



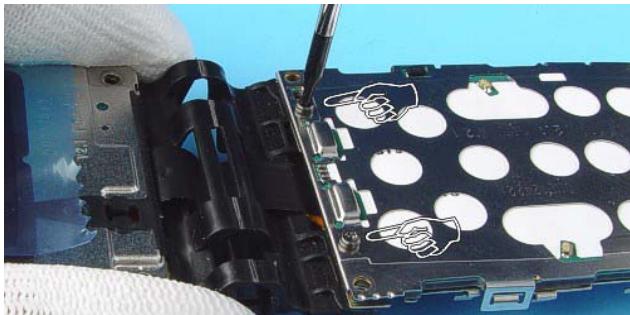
**18.) Open the Coax Connector of the Engine Module carefully by using tweezers.**



19.) Note the exactly position when laying the **Coax Cable** during assembly.



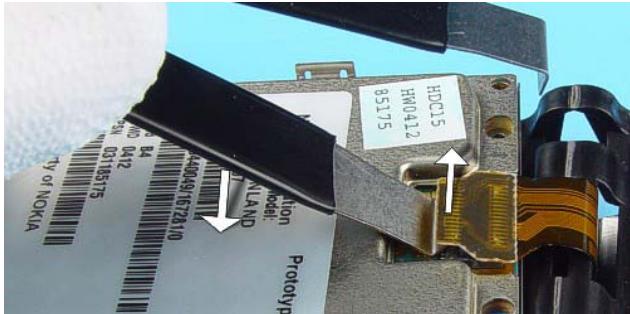
20.) Remove the **Coax Cable** carefully. When assembling always starts with the **Coax Connector Antenna**, "stretch" the cable towards hinge area carefully, then the same procedure when assembling at **Engine Module side**.



**21.)** Unscrew the two Torx Plus® size 5 screws from **Lower Block**. For assembly, a Torx Plus® driver with a torque of 6Ncm has to be used.



**22.) Put the Lower Block on the Upper Block as shown in the Picture.**



23.) Lift the shown side of the Flex Connector carefully by using the Flex Opening Tool as a lever.



24.) Now, open the Connector carefully.



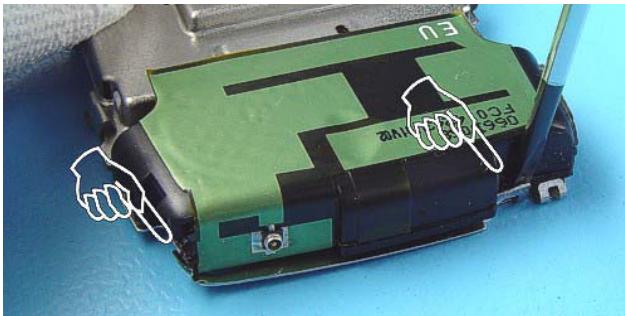
25.) Separate the Modules.



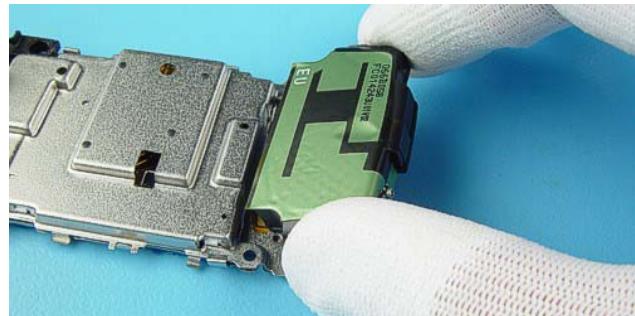
26.) Open the hooks before removing the Hinge (Plastic).



27.) Take care not to damage the Flex Connector when removing the Hinge (Plastic).



28.) Unlock the snaps before removing the IHF Antenna Module.



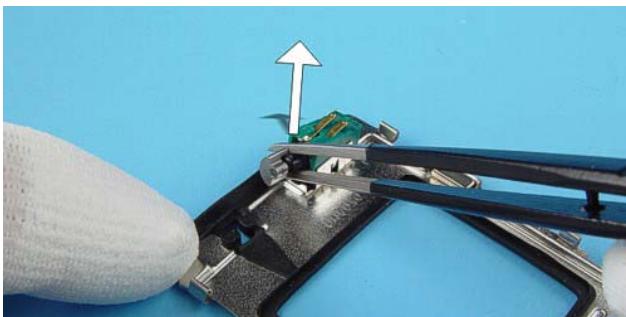
29.) Remove the IHF Antenna Module.



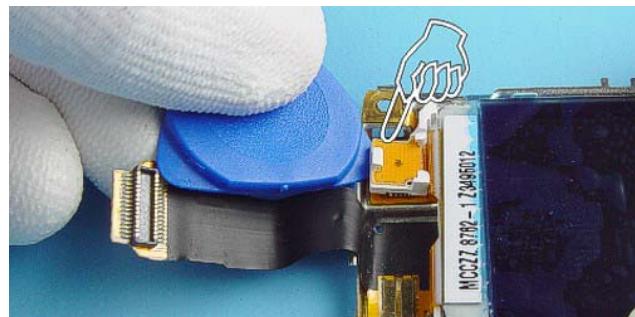
30.) Release the four hooks carefully by using the SRT-6.



31.) Separate the C2-Cover from LCD CAN Assy.



32.) Use tweezers when removing the **Vibra Motor**.



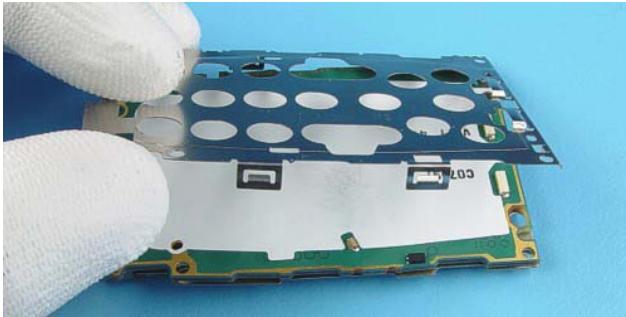
33.) Open the LCD Connector by using the SRT-6 carefully.



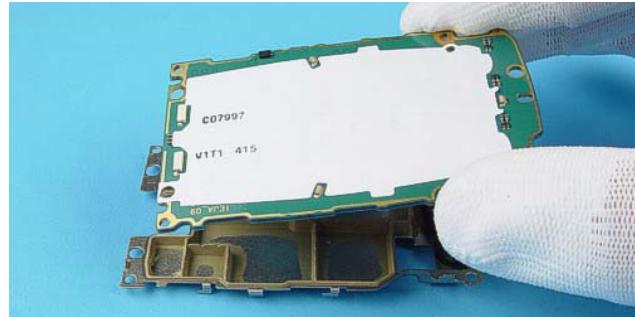
34.) Place the SRT-6 between **LCD** and the **LCD Can** as shown in the picture and lever out the **LCD** carefully.



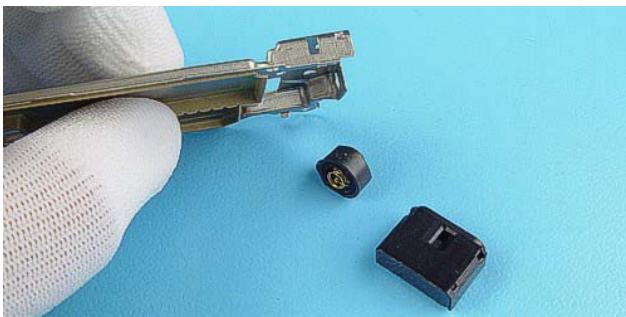
35.) Release the four springs of **Key Dome Shield (C-1Cover)**.



36.) Now, the **Key Dome Shield (C-1Cover)** can be removed.

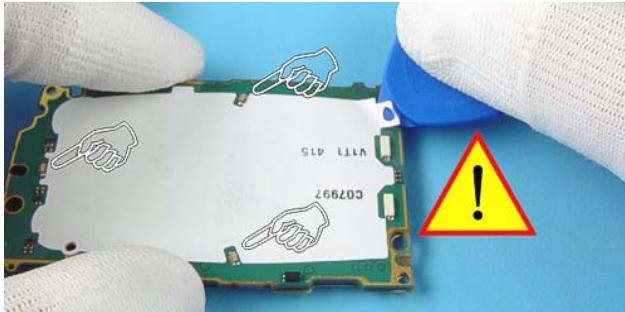


37.) The **Engine Module** can be removed easily.



38.) System Connector and **Microphone** drop out when turning the **Shielding Can**.

## 10. DOMESHEET EXCHANGE INSTRUCTIONS



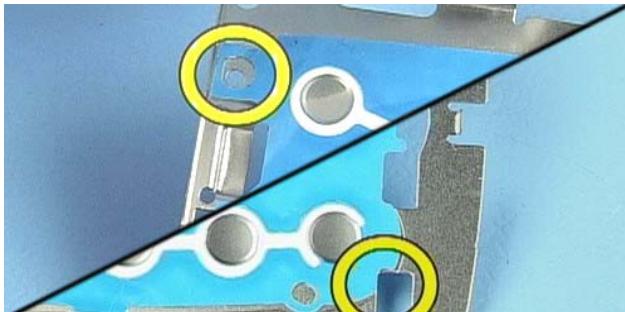
1.) Take care not to damage the LED's when exchanging the **Domesheet**. Start with SRT-6 as shown in the picture.



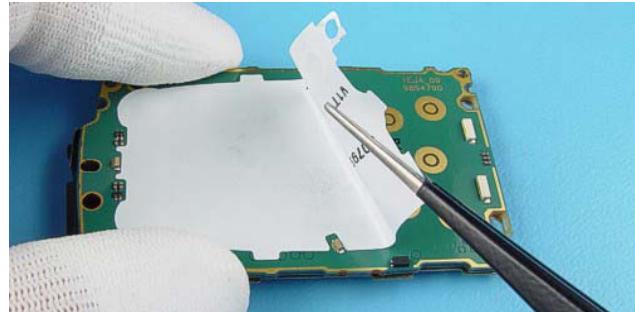
3.) Take the new **Domesheet** with tweezers.



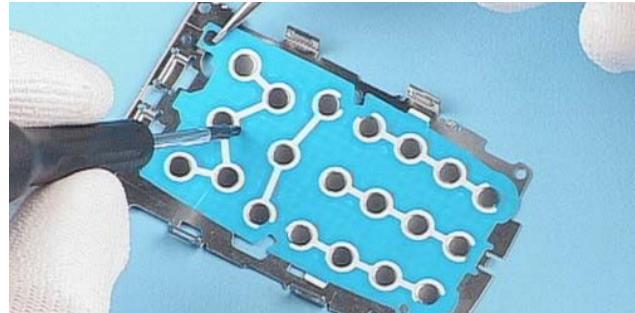
5.) Place the **Domesheet** straps into the slot of the Key Dome Shield.



7.) Make sure that the edges and the screw holes of **Domesheet** and the **Key Dome Shield (C-1Cover)** are congruent to each other.



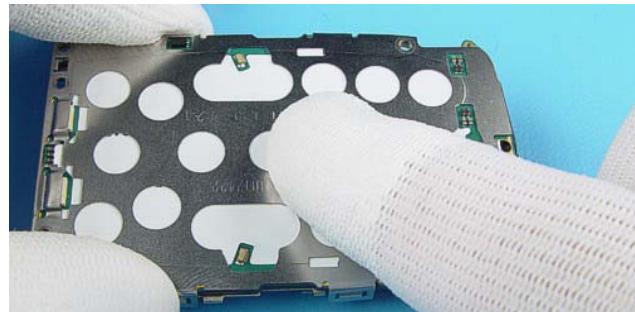
2.) Tweezers can be used to remove the defective **Domesheet**.



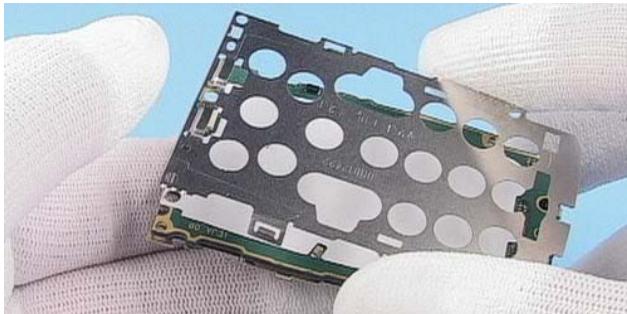
4.) Place the **Domesheet** in the **Key Dome Shield (C-1Cover)**.



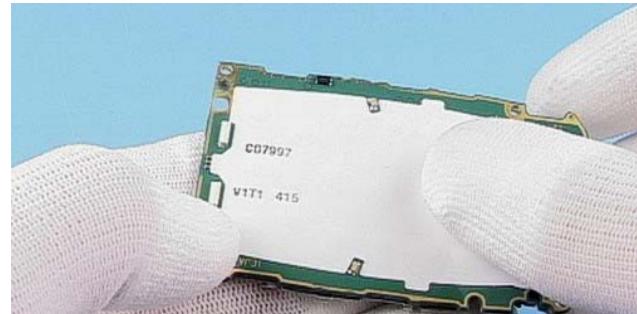
6.) Same procedure on the opposite side.



8.) Place the **Key Dome Shield (C-1Cover)** with the **Domesheet** on the **Engine Module** exactly and press-on the **Domesheet** carefully. Check if the **Domesheet** is correctly stuck to the **Engine Module**.



9.) Remove the Key Dome Shield (C-1Cover).



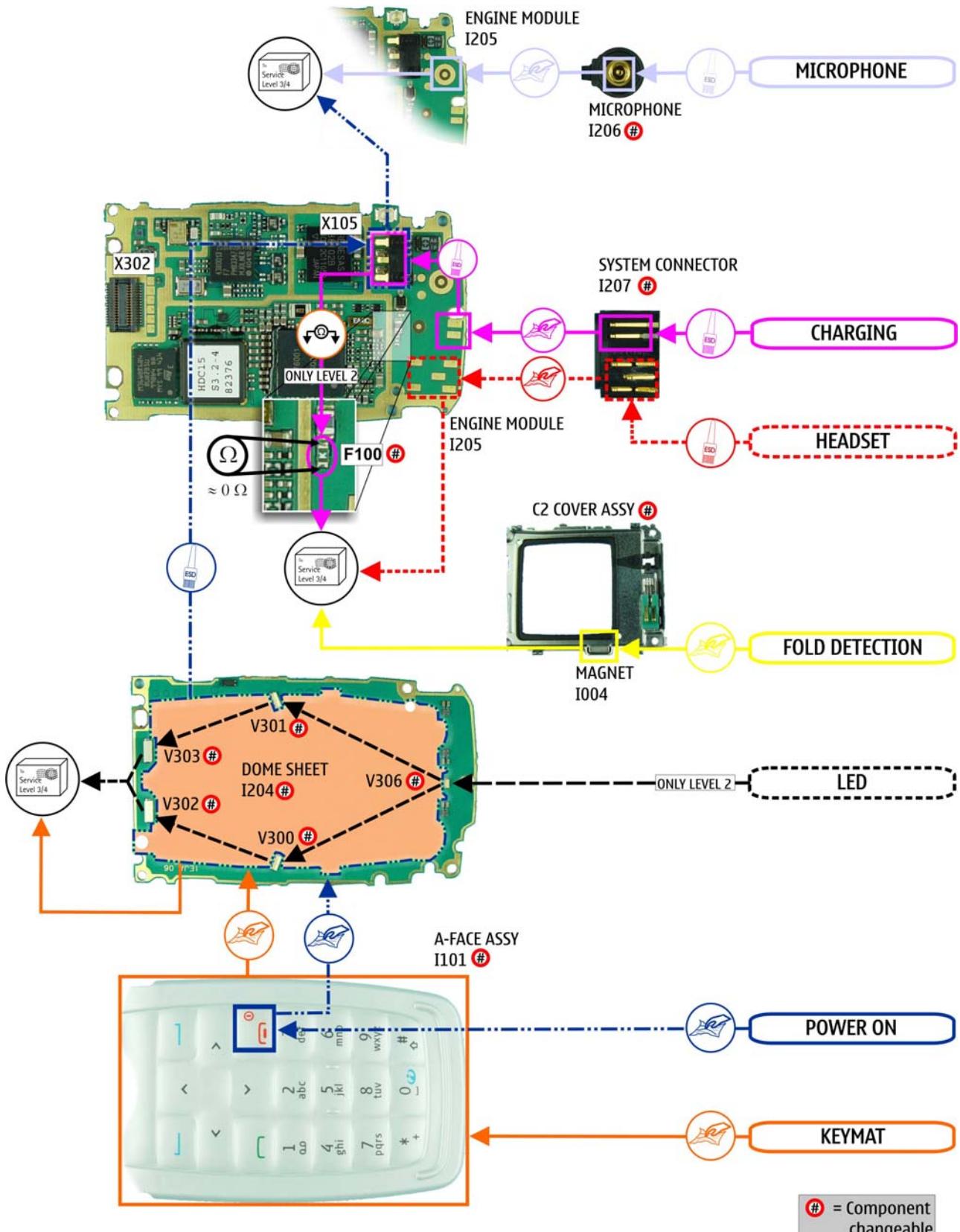
10.) Press on the Domesheet carefully. Ensure also, that there are no open edges or air gap.

## 11. LEGEND FOR QUICK TROUBLE SHOOTER

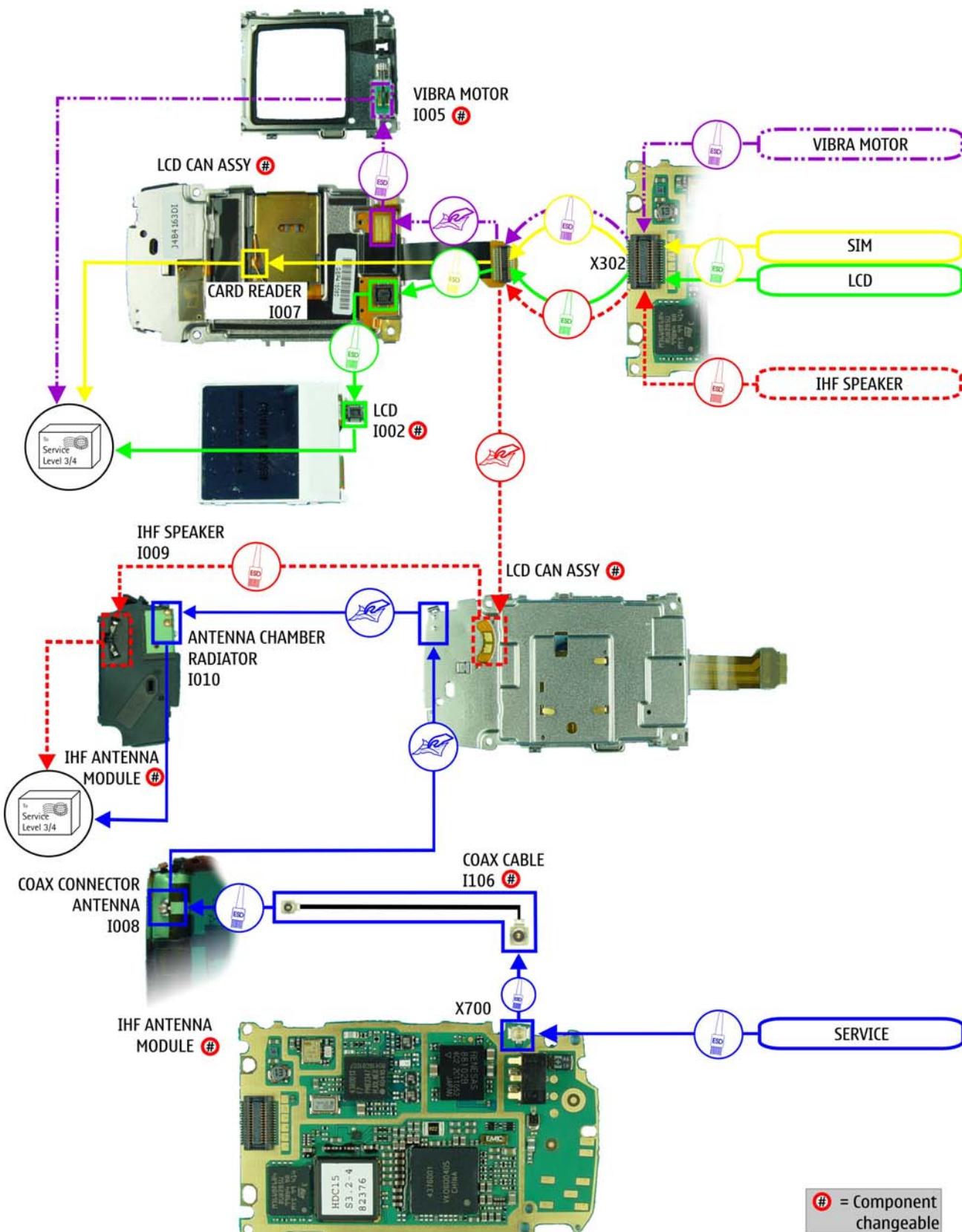
This legend is valid for all parts of the Quick Trouble Shooter

Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward.	
	Only marked components ( e.g. I002 # ) can be changed.
<b>Fault symptom</b>	The start point of repair activities regarding the appeared fault symptoms.
	Follow the arrows step by step
	Pads or contacts: Check optical and mechanical condition particularly regarding to corrosion. Clean if necessary.
	Measure component for electrical functionality and change, if needed. (Level 2 only)
	Pads or contacts: Check optical and mechanical condition particularly regarding to corrosion. Clean with ESD brush only, if necessary.
	No more actions possible send product to the appropriate service supplier with higher service level.

## 12. QUICK TROUBLE SHOOTER PART 1



## 13. QUICK TROUBLE SHOOTER PART 2



## 14. GONO GO TEST

After the optical check, a GoNoGo test has to be carried out if the unit has been unscrewed to guarantee the functionality of the phone.

Please refer to the actual information on Partner Web Site / Nokia Online. When using delivered tester support files, take care of the right setup according to the tester type and product type.

Please refer to "Recommended Service Equipment" on Nokia Partner Web Site / Nokia Online.



Mobile Phone Tester

## 15. BATTERY TEST

A battery tester lets you test the capacity of Nokia batteries.

Please refer to the actual information on Partner Web Site/Nokia Online.

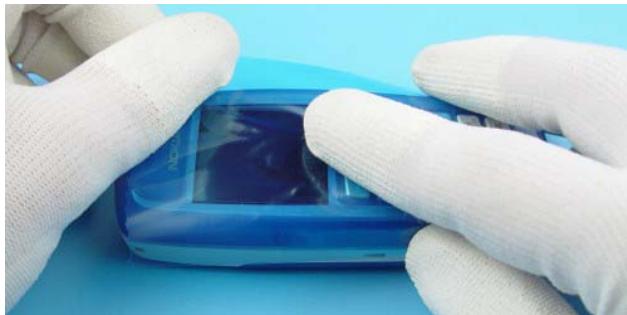


<http://www.astratec.co.uk/>

<http://www.cadex.com/>

## 16. FORWARDING OF REPAIRS

When it is necessary to forward of repairs to appropriate service supplier with higher service level we recommend using the offered swap phone cartons as described in Spare Parts SB-004.



Always Protect the window with a protection film.



Put the unit under the stretch film.



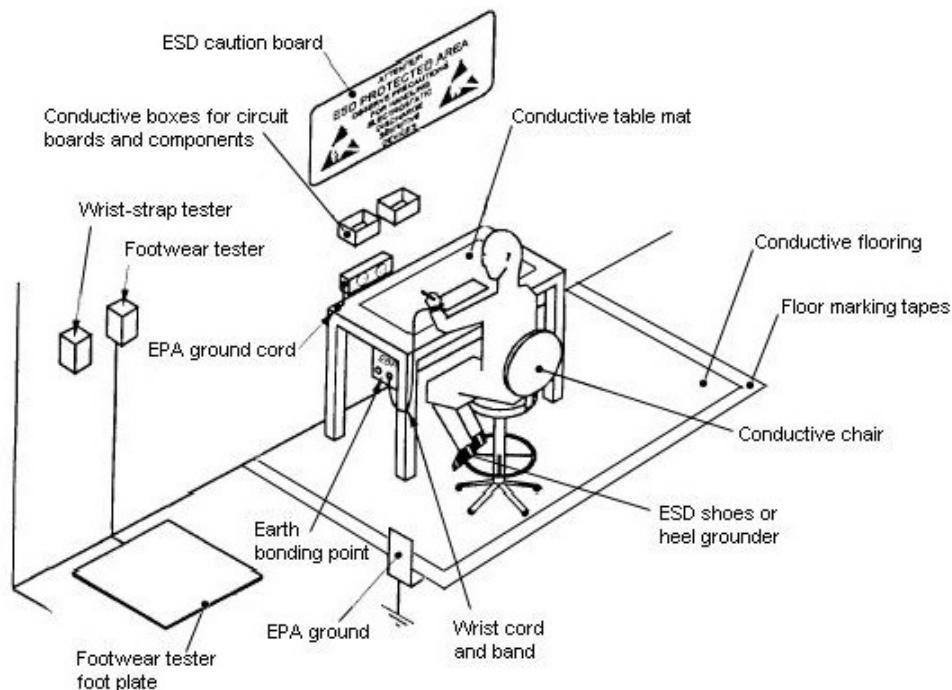
Add repair documentation e.g. filled-in service note into Fold the swap carton as shown in Spare Parts SB-004. the swap carton.



There are two different sizes of swap cartons for common mobile phones.

## 17. ESD PROTECTION REQUIREMENTS

Please refer to the Partner Web Site/Nokia Online document [Service Supplier Requirements](#) in folder General instructions.



**USE** Conductive bags and boxes

**USE** ESD compatible service tools

**USE** Conductive wastebaskets

**USE** ESD gloves when handling PWBs/PCBs

**USE** Cleaning material without changing el. Characteristics

**USE** Grounded service equipment, i.e. soldering station

**USE** ESD clothes such as coat or frock

**NO** Smoking

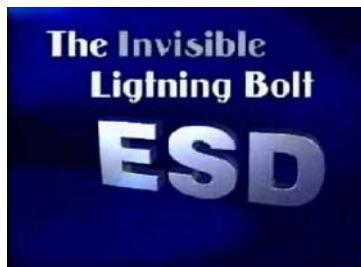
**NO** Drinking

**NO** Eating

**NO** Dust

**NO** Useless Items

**NO** Normal pressured air for cleaning modules/displays



The video covers general issues concerning Electro-Static Discharge (ESD)